

Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application. In this listing, claims 5, 9-11, 21, 24 and 28-30 have been amended. Entry and consideration of these amendments is respectfully requested.

Listings of Claims:

Please amend the claims as indicated below:

1. (Original) A light-emitting device comprising:
a light-emitting unit configured to emit a first light radiation, wherein the light-emitting unit includes a plurality of first connecting pads;
a base substrate configured to emit a second light radiation when stimulated by the first light radiation, wherein the base substrate includes a plurality of second connecting pads; and
a plurality of conductive bumps connecting the first connecting pads of the light-emitting unit to the second connecting pads of the base substrate.
2. (Original) The light-emitting device of claim 1, wherein the light-emitting unit is a light-emitting diode configured to emit blue light.
3. (Original) The light-emitting device of claim 1, wherein the base substrate is configured to emit yellow light when stimulated by the first light radiation from the light-emitting unit.

4. (Original) The light-emitting device of claim 1, wherein the light-emitting unit comprises:

a first substrate;

a first cladding layer;

an active layer;

a second cladding layer; and

first and second ohmic contact layers;

wherein the first connecting pads are connected to the first and second ohmic contact layers.

5. (Currently Amended) The light-emitting device of claim 4, wherein the first substrate includes a sapphire substrate, or a SiC substrate ~~or the like~~.

6. (Original) The light-emitting device of claim 4, wherein the first cladding layer includes an n-type GaN layer.

7. (Original) The light-emitting device of claim 4, wherein the active layer includes a multi-quantum well multi-layer structure or a single well structure.

8. (Original) The light-emitting device of claim 4, wherein the second cladding layer includes a p-type GaN layer.

9. (Currently Amended) The light-emitting device of claim 4, wherein the first ohmic contact layer includes is made of a metallic alloy including Ti/Al, Ti/Al/Ti/Au, Ti/Al/Pt/Au, Ti/Al/Ni/Au, Ti/Al/Pd/Au, Ti/Al/Cr/Au, Ti/Al/Co/Au, Cr/Al/Cr/Au, Cr/Al/Pt/Au, Cr/Al/Pd/Au, Cr/Al/Ti/Au, Cr/Al/Co/Au, Cr/Al/Ni/Au, Pd/Al/Ti/Au, Pd/Al/Pt/Au, Pd/Al/Ni/Au, Pd/Al/Pd/Au, Pd/Al/Cr/Au, Pd/Al/Co/Au, Nd/Al/Pt/Au, Nd/Al/Ti/Au, Nd/Al/Ni/Au, Nd/Al/Cr/Au, Nd/Al/Co/A, Hf/Al/Ti/Au, Hf/Al/Pt/Au, Hf/Al/Ni/Au, Hf/Al/Pd/Au, Hf/Al/Cr/Au, Hf/Al/Co/Au, Zr/Al/Ti/Au, Zr/Al/Pt/Au, Zr/Al/Ni/Au, Zr/Al/Pd/Au, Zr/Al/Cr/Au, Zr/Al/Co/Au, TiN_x/Ti/Au, TiN_x/Pt/Au, TiN_x/Ni/Au, TiN_x/Pd/Au, TiN_x/Cr/Au, TiN_x/Co/Au, TiWN_x/Ti/Au, TiWN_x/Pt/Au, TiWN_x/Ni/Au, TiWN_x/Pd/Au, TiWN_x/Cr/Au, TiWN_x/Co/Au, NiAl/Pt/Au, NiAl/Cr/Au, NiAl/Ni/Au, NiAl/Ti/Au, Ti/NiAl/Pt/Au, Ti/NiAl/Ti/Au, Ti/NiAl/Ni/Au, or Ti/NiAl/Cr/Au ~~or the like~~.

10. (Currently Amended) The light-emitting device of claim 4, wherein the second ohmic contact layer is made of a metallic alloy including Ni/Au, Ni/Pt, Ni/Pd, Ni/Co, Pd/Au, Pt/Au, Ti/Au, Cr/Au, Sn/Au, Ta/Au, TiN, TiWN_x, or WSi_x ~~or the like~~.

11. (Currently Amended) The light-emitting device of claim 4, wherein the second ohmic contact layer is made of a transparent conductive oxide including indium tin oxide, cadmium tin oxide, ZnO:Al, ZnGa₂O₄, SnO₂:Sb, Ga₂O₃:Sn, AgInO₂:Sn, In₂O₃:Zn, NiO, MnO, FeO, Fe₂O₃, CoO, CrO, Cr₂O₃, CrO₂, CuO, SnO, Ag₂O, CuAlO₂, SrCu₂O₂, LaMnO₃, or PdO ~~or the like~~.

12. (Original) The light-emitting device of claim 1, wherein the base substrate includes a luminescent layer, a passivation layer, and the second connecting pads are formed over the passivation layer.

13. (Original) The light-emitting device of claim 12, wherein the luminescent layer includes ZnSe-based material.

14. (Original) The light-emitting device of claim 12, wherein the luminescent layer is made of a material blend including at least one phosphor powder and benzocyclobutene or an epoxy-based negative resist.

15. (Original) The light-emitting device of claim 12, wherein the passivation layer of the base substrate includes SiO₂.

16. (Original) The light-emitting device of claim 12, wherein the base substrate further comprises:

a second substrate; and

a reflective layer over a surface of the second substrate;

wherein the luminescent layer is placed over a surface of the reflective layer.

17. (Original) The light-emitting device of claim 16, wherein the second substrate includes a silicon-based material.

18. (Original) The light-emitting device of claim 16, wherein the reflective layer includes a metallic material.

19. (Original) The light-emitting device of claim 16, wherein the reflective layer includes an insulating dielectric material.

20. (Original) A process of forming a light-emitting device, comprising:
forming a light-emitting unit provided with a plurality of first connecting pads, wherein the light-emitting unit is configured to emit a first light radiation;
forming a base substrate provided with a plurality of second connecting pads, wherein the base substrate is configured to emit a second light radiation when stimulated with the first light radiation;
forming a plurality of conductive bumps on either the first or second connecting pads;
and
connecting the first and second connecting pads via the conductive bumps.

21. (Currently Amended) The process of claim 20, wherein connecting the first and second connecting pads via the conductive bumps comprises:
placing the light-emitting unit so that the conductive bumps contact with the second connecting pads of the base substrate; and
performing a reflow process.

22. (Original) The process of claim 20, wherein the conductive bumps include solder bumps.

23. (Original) The process of claim 20, wherein forming a light-emitting unit comprises:

forming a multi-layer structure including a first substrate, a first cladding layer, an active layer, a second cladding layer and a second ohmic contact layer;

patterning the multi-layer structure to expose an area of the first cladding layer;

forming a first ohmic contact layer on the exposed area of the first cladding layer,

forming an insulating layer to cover a portion of the multi-layer structure, wherein the insulating layer exposes areas of the first and second ohmic contact layers; and

forming the first connecting pads in the exposed areas of the first and second ohmic contact layers.

24. (Currently Amended) The process of claim 23, wherein the first substrate includes a sapphire substrate, or a SiC substrate ~~or the like~~.

25. (Original) The process of claim 23, wherein the first cladding layer includes an n-type GaN layer.

26. (Original) The process of claim 23, wherein the active layer includes a multi-quantum well multi-layer structure or a single well structure.

27. (Original) The process of claim 23, wherein the second cladding layer includes a p-type GaN layer.

28. (Currently Amended) The process of claim 23, wherein the first ohmic contact layer is made of a metallic alloy including Ti/Al, Ti/Al/Ti/Au, Ti/Al/Pt/Au, Ti/Al/Ni/Au, Ti/Al/Pd/Au, Ti/Al/Cr/Au, Ti/Al/Co/Au, Cr/Al/Cr/Au, Cr/Al/Pt/Au, Cr/Al/Pd/Au, Cr/Al/Ti/Au, Cr/Al/Co/Au, Cr/Al/Ni/Au, Pd/Al/Ti/Au, Pd/Al/Pt/Au, Pd/Al/Ni/Au, Pd/Al/Pd/Au, Pd/Al/Cr/Au, Pd/Al/Co/Au, Nd/Al/Pt/Au, Nd/Al/Ti/Au, Nd/Al/Ni/Au, Nd/Al/Cr/Au, Nd/Al/Co/A, Hf/Al/Ti/Au, Hf/Al/Pt/Au, Hf/Al/Ni/Au, Hf/Al/Pd/Au, Hf/Al/Cr/Au, Hf/Al/Co/Au, Zr/Al/Ti/Au, Zr/Al/Pt/Au, Zr/Al/Ni/Au, Zr/Al/Pd/Au, Zr/Al/Cr/Au, Zr/Al/Co/Au, TiN_x/Ti/Au, TiN_x/Pt/Au, TiN_x/Ni/Au, TiN_x/Pd/Au, TiN_x/Cr/Au, TiN_x/Co/Au, TiWN_x/Ti/Au, TiWN_x/Pt/Au, TiWN_x/Ni/Au, TiWN_x/Pd/Au, TiWN_x/Cr/Au, TiWN_x/Co/Au, NiAl/Pt/Au, NiAl/Cr/Au, NiAl/Ni/Au, NiAl/Ti/Au, Ti/NiAl/Pt/Au, Ti/NiAl/Ti/Au, Ti/NiAl/Ni/Au, or Ti/NiAl/Cr/Au ~~or the like~~.

29. (Currently Amended) The process of claim 23, wherein the second ohmic contact layer is made of a metallic alloy including Ni/Au, Ni/Pt, Ni/Pd, Ni/Co, Pd/Au, Pt/Au, Ti/Au, Cr/Au, Sn/Au, Ta/Au, TiN, TiWN_x, or WSi_x ~~or the like~~.

30. (Currently Amended) The process of claim 23, wherein the second ohmic contact layer is made of a transparent conductive oxide including indium tin oxide, cadmium tin oxide, ZnO:Al, ZnGa₂O₄, SnO₂:Sb, Ga₂O₃:Sn, AgInO₂:Sn, In₂O₃:Zn, NiO, MnO, FeO, Fe₂O₃, CoO, CrO, Cr₂O₃, CrO₂, CuO, SnO, Ag₂O, CuAlO₂, SrCu₂O₂, LaMnO₃, or PdO ~~or the like~~.

31. (Original) The process of claim 20, wherein forming a base substrate comprises:
forming a luminescent layer;
forming a passivation layer covering the luminescent layer; and
forming the second connecting pads over the passivation layer.
32. (Original) The process of claim 31, wherein the luminescent layer includes ZnSe-based material.
33. (Original) The process of claim 31, wherein the luminescent layer is made of a material blend including at least one phosphor powder and benzocyclobutene or an epoxy-based negative resist.
34. (Original) The process of claim 31, wherein the passivation layer includes SiO₂.
35. (Original) The process of claim 31, wherein forming the base substrate further comprises:
forming a reflective layer over a surface of a second substrate; and
forming the luminescent layer over a surface of the reflective layer.
36. (Original) The process of claim 35, wherein the second substrate includes a silicon-based material.

37. (Original) The process of claim 35, wherein the reflective layer includes a metallic material.

38. (Original) The process of claim 35, wherein the reflective layer includes an insulating dielectric material.

39. (Original) The process of claim 23, wherein patterning the multi-layer structure to expose an area of the first cladding layer comprises:

forming a photoresist pattern;

etching through the photoresist pattern until an area of the first cladding layer is exposed;

and

removing the photoresist pattern.